

**PART I - SECTION C**  
**SCOPE OF WORK**

Lockout/Tagout (LOTO) procedures will be developed in conformance with all regulatory requirements listed in Section II below. The contractor will provide the technical support and an MSWord document of a site-specific LOTO plan, LOTO procedures assessment, an inventory of the equipment (see attached sample documents), and labels to the Federal Aviation Administration. The plan will establish procedures for the LOTO of energy isolating devices whenever maintenance or servicing is done on mechanical equipment or electrical equipment. These procedures must be used to ensure that the mechanical equipment or electrical equipment is stopped, isolated from all energy sources, and locked out before employees perform any service where the unexpected activation of the equipment and/or release of stored energy could occur. There are 150 procedures required for this facility.

**FACILITY DESCRIPTION**

The subject of this LOTO project is a Federal Aviation Administration (FAA) Air Traffic Control Tower (ATCT) and Base Building located at the Palm Springs International Airport located in Palm Springs, CA.

**Address:**

280 N El Cielo Rd  
Palm Springs, CA 92262

This is a new facility currently under construction at approximately 95% complete.

**ATCT:**

The ATCT is built in the center of the Base Building. The gross floor area is 8,078 sqft. Height 127 ft. with 9-levels. Electronic equipment is located on the 8-th floor along with elevator room and mechanical room. The cab is located on the 9-th floor.

**Base Building:**

Single story with gross floor area of 7,232 sqft. The east side of the building consists of the offices, restrooms, lockers rooms and break room. The west side consists of electrical room, emergency generator room, mechanical room, electronic equipment room and telco room.

**Equipment Yard:**

The equipment yard is located close to the west side of the Base Building. It contains 2-air cooled chillers and a 1,000 gallon fuel storage tank serving the EG.

**Mechanical System:**

The mechanical system consists of 2- 80-ton air cooled chillers, 2-chilled water pumps, 3-air handling units, 3-computer room units CRACS, 3-fan coil units and an energy recovery unit. The ATCT contains 2-computer units- CRAC, 4-fan coil units, 2-air handling units and 2-humidifiers. Solenoid valves and 3-way valves are installed on the chilled water piping.

**Plumbing:**

The plumbing system includes but is not limited to: 2-pumps, electric water heater, 2-reverse osmosis units and 2-humidifiers.

**Electrical:**

16-electrical panels, 1-EG.

**Fire Life Safety (FLS):**

The fire sprinkler system is installed in the ATCT and Base Building and it consists of 10-sprinkler zones. A fire alarm system is installed in the ATCT and Base Building. The FLS panel is located in the Base Building. A stair pressurization fan is installed in the tower.

**SCOPE OF WORK****I. Introduction**

LOTO programs are designed to prevent accidental start-up of mechanical equipment such as: chillers, chilled water pumps, humidifiers, air handling units, CRACs, fan coil units, domestic water pumps, hot water heaters, reverse osmosis units, fire life safety pumps, sewer pumps etc.; or electrical equipment: EG, transfer switch, panelboards, emergency lighting fixtures, etc., and to prevent the release of stored energy during servicing or maintenance. Through the use of specific procedures that involve applying locks and/or tags, equipment are isolated from energy sources in order to prevent injuries to workers. While lockout is the preferred method of isolating machines or equipment from energy sources, tagout is permitted when the energy isolating devices are not lockable. Tagout may not be used when the energy isolating devices are lockable. For complex systems OSHA requires specific written procedures.

**II. Regulatory Requirements**

An employer's lockout/tagout program must be developed to meet the following:

- Occupational Safety and Health Administration's (OSHA) requirements found in 29 CFR 1910.147, and The Control of Hazardous Energy (Lockout/Tagout), and 29 CFR 1910 Subpart S
- NFPA 70E – Standard for Electrical Safety in Workplace

- FAA Notice NJO 3900.73
- FAA Order 3900.19 WSA SUP 1

### **PREPARATION FOR LOCKOUT/TAGOUT**

A survey must be completed to locate and identify all isolating devices to ascertain which switch(es), valve(s), or other energy isolating devices, apply to the equipment to be locked or tagged out. More than one energy source (electrical, mechanical, stored energy, or others) may be involved.

### **LOCKS AND LOCKOUT DEVICES**

All lockout devices must be equipment specific and of high and durable quality. They may come in kits or individually. The locks must be specifically made for LO/TO purposes, in tough lightweight plastic; and corrosion, UV and extreme-temperature resistance, such as Master Lock Xenoy or similar. Provide a minimum of two sets of five colors and three sizes – total thirty locks. Cutsheet submittal required with offer.

### **LABELS AND TAGS**

Labels will be prepared for any equipment that has more than one source of energy or requiring a specific procedure. Labels shall be weatherproof. Labels will be approximately 8x10 laminated color cards with detailed description of the LO/TO process for the particular equipment or machine. There will be hazard level identifying colors yellow (caution), orange (warning), and red (danger). There is no requirement that all three colors be used. The colors depend on the specific hazards identified. The label will contain the following:

- The equipment description – chiller.
- The equipment identification tag – CH -1.
- The exact location of the equipment – east mechanical yard.
- Number of isolation points or devices to be locked and tagged. Use color coding to distinguish between electrical and mechanical points.
- Well organized, clear, precise, and concise description of each isolation point, exact location on the equipment, its source of power, and how it should be de-energized, locked, tagged, and checked.
- Color photographs of the equipment clearly showing the isolation points or devices (power panels, circuit breakers, etc.) to be locked and tagged.

Tags are device identifiers to make the procedures clear and easy to follow. Each tag will be unique, clearly identifying the device it is attached to. Tags shall be heavyweight thermoplastic and color-coded, approximately 2"x3". Generic tags, such as "valve" will not be acceptable. In addition, there will also be generic all purpose tags such as "danger," "do not close," "do not open," etc. as required by the procedures.

The contractor will submit with their offer samples of labels and tags for review and approval.

### **SPECIFIC PROCEDURES**

System-specific procedures will be in full compliance with regulatory requirements stated above.

The Contractor must furnish all material, labor and supervision to evaluate LO/TO hazards and the development of site specific written procedures.

The Contractor must be responsible for the hiring and supervision of any Subcontractor, if necessary, to complete the actions specified in the Scope of Work.

### **TECHNICAL CONTACT POINTS**

FAA POC will establish with the contractor facility access procedures and hours, and working conditions/scheduling any down times.

Engineering Services must provide contractor with applicable construction contract drawings and specifications (electrical and mechanical). Such drawings and specifications are incorporated within this solicitation.

The following personnel must serve as point of contact for the contractors:

Primary on site contact:  Daniel Dean, FAA RE	Cellular Number:  404/539-7149
Engineer:  Liz Wagner, FAA PE	Office Number:  310/725-7426

### **CONTRACTOR QUALIFICATIONS**

Offerors for this project must have successfully completed a minimum of two (2) LOTO projects similar in size and complexity within the past 3-years.

If the offeror has not completed 2-LOTO projects within the past 3-years, the offeror must submit a statement identifying all the reasons why they are qualified to perform this work. The statement must not exceed 1 - 8 ½ x 11 sheet of paper. The FAA will

consider the offeror's education, training and experience in lieu of actual LOTO projects completed.

### **CONTRACTOR REQUIREMENTS**

1. An on-site inventory of the installed facility equipment must be completed by the contractor. "As-Built" conditions must be taken into account when preparing the document. The contractor must verify the on-site conditions.
2. A pre-award site visit is not required.
3. Contractual point of contact must be established. This individual will be required to distribute documents for review and collection and consolidation of comments.
4. All equipment can be shut down with prior coordination. These procedures are being prepared for a non-operational facility.
5. Contractor is responsible for the repair of the facility or equipment inadvertently damaged as a result of the testing and verification of procedures.
6. Contractor will provide insurance documentation as specified in Section I - Clause 3.4.1-12 of this solicitation to cover any damages caused during on-site verification and testing of procedures.
7. Contractor to provide a complete list of all equipment requiring written LO/TO procedures and all equipment exempt from specific procedures for the facility. Contractor must provide two complete sets.
8. Providing arc flash report and labels is not part of this service.
9. The contractor will affix labels and tags to the equipment after all submittals and procedures have been approved by the FAA.
10. Identify all potential hazardous energy sources and ensure that all energy isolation means are documented in the procedures.
11. Create effective and easy-to understand procedures for each piece of equipment.
12. Post durable, laminated equipment-specific labels and procedures at optimal locations on the equipment to ensure maximum visibility and usability.
13. Install heavyweight thermoplastic, color-coded energy source tags at each energy isolation point to visually direct authorized employees to the precise energy source locations.
14. Deliver the electronic files, lockout/Tagout procedures templates, and a binder containing two additional copies of the procedures, as well as provide two training sessions on all procedures and maintaining the new lockout/Tagout program. The two training sessions must be two days apart.

**CONTRACT DURATION**

Concepts review and list of systems requiring written specific procedures 30 days after award of contract.

Review of systems and processes at 50%: Review date: \_\_\_\_\_TBD\_\_\_\_\_.

Final LO/TO documents to be delivered on: \_\_\_\_\_TBD\_\_\_\_\_.

**SYSTEMS COVERED**

Electrical: power, battery, fire alarm and suppression, elevator, etc.

Mechanical: plumbing, fire sprinkler, chilled water, fuel systems, ACU, HVAC, hot water, etc.

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## **Sample Forms**

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## FAA – PSP ATCT/Base Building

## EQUIPMENT/SYSTEM SPECIFIC LOCKOUT/TAGOUT (LOTO) PROCEDURE

<b>Work Location:</b>	<b>Equipment/Process:</b> [provide detailed description]:
<b>Energy Type(s):</b> [choose and identify energy type in appropriate box below] <input type="checkbox"/> Kinetic <input type="checkbox"/> Pneumatic <input type="checkbox"/> Hydraulic <input type="checkbox"/> Mechanical <input type="checkbox"/> Electrical <input type="checkbox"/> Other (please specify) _____	
<b>Personal Protective Equipment/Equipment Requirements:</b> [specify equipment needs below] <ul style="list-style-type: none"> <li>• _____</li> <li>• _____</li> <li>• _____</li> <li>• _____</li> <li>• _____</li> <li>• _____</li> <li>• _____</li> <li>• _____</li> <li>• _____</li> </ul>	<b>References:</b> [insert applicable Technical Instruction Manual references] <ul style="list-style-type: none"> <li>• _____</li> <li>• _____</li> <li>• _____</li> <li>• _____</li> <li>• _____</li> <li>• _____</li> <li>• _____</li> <li>• _____</li> <li>• _____</li> </ul>
<b>Purpose:</b> This procedure shall be used to ensure that authorized personnel performing maintenance on this equipment have protected all authorized and affected employees from hazardous energy sources.	
<b>Preparation for Shutdown:</b> <ol style="list-style-type: none"> <li>1) Review energy sources and magnitudes. Consult the facility's electrical diagram for the specific power configuration.</li> <li>2) Notify all affected employees in the area that the system will be shut down and locked out.</li> </ol> <p><b>WARNING:</b> The lockout/tagout actions outlined in this procedure do not supersede instructions found in any equipment technical order or instruction manual. Always review and perform all prerequisite maintenance procedures</p>	



**before performing lockout/tagout.**

**Shutdown/Isolation of System:**

[insert required sequence of lockout procedures on system, in order to isolate any hazardous energy sources of the system and establish a safe working condition]

(a) \_\_\_\_\_

—

(b) \_\_\_\_\_

—

(c) \_\_\_\_\_

—

(d) \_\_\_\_\_

—

(e) \_\_\_\_\_

—

(f) \_\_\_\_\_

—

(g) \_\_\_\_\_

—

(h) \_\_\_\_\_

—

(i) \_\_\_\_\_

—

(j) \_\_\_\_\_

—

**Verify Isolation of System:**

[to include trying to start the system and verify with testing equipment/device(s)]

✓	_____
—	_____
✓	_____
—	_____
✓	_____
—	_____
✓	_____
—	_____
✓	_____
—	_____
✓	_____
—	_____
✓	_____
—	_____
✓	_____
—	_____
✓	_____
—	_____

**Release from LO/TO:**

[insert required sequence of procedures for restoring the system and/or electrical power supply to the system, in order to return to normal operating condition]

(a) \_\_\_\_\_

—

(b) \_\_\_\_\_

—

(c) \_\_\_\_\_

—

(d) \_\_\_\_\_

—

(e) \_\_\_\_\_

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(f) \_\_\_\_\_

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(g) \_\_\_\_\_

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(h) \_\_\_\_\_

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(i) \_\_\_\_\_

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(j) \_\_\_\_\_

—

**Procedure Reviewed by  
(Authorized Person):**

**Supervisor  
Signature:**

**Date Implemented:**

\_\_\_\_/\_\_\_\_/\_\_\_\_

**Additional relevant information:**

➤	_____
	_____
➤	_____
	_____
➤	_____
	_____
➤	_____
	_____
➤	_____
	_____
➤	_____
	_____
➤	_____
	_____

## FAA – PSP ATCT/Base Building

## EQUIPMENT/SYSTEM SPECIFIC LOCKOUT/TAGOUT (LOTO) PROCEDURE

<b>Work Location:</b>		<b>Equipment/Process:</b> [provide detailed description]:
<b><u>Verification Statement:</u></b> "I have verified that this lockout/Tagout procedure(s) has removed any hazardous energy from the equipment/process system as detailed and described above."		
<b>SSC Manager</b> (Print Name)	<b><u>Signature</u></b>	<b><u>Verification Date</u></b>  ____/____/____
<b>Technician</b>	<b><u>Signature</u></b>	<b><u>Verification Date</u></b>  ____/____/____
<b>TID/SPS</b>	<b><u>Signature</u></b>	<b><u>Verification Date</u></b>  ____/____/____
<b>Other</b> (Specify and Print Name)	<b><u>Signature</u></b>	<b><u>Verification Date</u></b>  ____/____/____

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